Reference = BALA 15; PR D91 051101
Verifier code = BELLE

Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis co-ordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

PLEASE READ NOW

PLEASE REPLY WITHIN ONE WEEK

Karim Trabelsi

EMAIL: karim.trabelsi@kek.jp

July 21, 2016

Dear Colleague,

(1) Please check the results of your experiment carefully. They are marked.

(2) Please reply within one week.

(3) Please reply even if everything is correct.

(4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.

(5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

Simon Eidelman
BINP, Budker Inst. of Nuclear Physics
Prospekt Lavrent'eva 11
RU-630090 Novosibirsk
Russian Federation

EMAIL: simon.eidelman@cern.ch

$c\bar{c}$ MESONS

NODE=MXXX025

NODE=M176

$X(3872)$

$I^G(J^{PC}) = 0^+(1^{++})$

First observed by CHOI 03 in $B \to K\pi^+\pi^- J/\psi(1S)$ decays as a narrow peak in the invariant mass distribution of the $\pi^+\pi^- J/\psi(1S)$ final state. Isovector hypothesis excluded by AUBERT 05B and CHOI 11.

NODE=M176

AAIJ 13Q perform a full five-dimensional amplitude analysis of the angular correlations between the decay products in $B^+ \to X(3872)K^+$ decays, where $X(3872) \to J/\psi\pi^+\pi^-$ and $J/\psi \to \mu^+\mu^-$, which unambiguously gives the $J^{PC} = 1^{++}$ assignment under the assumption that the $\pi^+\pi^-$ and J/ψ are in an S-wave. AAIJ 15AO extend this analysis with more data to limit D-wave contributions to $< 4\%$ at 95% CL.

See our note on "Developments in Heavy Quarkonium Spectroscopy".

$X(3872)$ BRANCHING RATIOS

NODE=M176235

$\Gamma(\pi^+\pi^- J/\psi(1S))/\Gamma_{total}$ Γ_2/Γ

NODE=M176R6

NODE=M176R6

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>0.026	93 ± 17	[1] AUBERT	08Y	BABR	$B \to X(3872)K$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
YOUR DATA seen	151	[2] BALA	15	BELL	$B \to X(3872)K\pi$
>0.04	30	[3] AUBERT	05R	BABR	$B^+ \to K^+\pi^+\pi^- J/\psi$
>0.04	36 ± 7	[4] CHOI	03	BABR	$B^+ \to K^+\pi^+\pi^- J/\psi$

[1] AUBERT 08Y reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] = (8.4 \pm 1.5 \pm 0.7) \times 10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$.

NODE=M176R6;LINKAGE=AB

YOUR NOTE [2] BALA 15 reports $B(X(3872) \to \pi^+\pi^- J/\psi) \times B(B^0 \to X(3872)K^+\pi^-) = (7.9 \pm 1.3 \pm 0.4) \times 10^{-6}$ and $B(X(3872) \to \pi^+\pi^- J/\psi) \times B(B^+ \to X(3872)K^0\pi^+) = (10.6 \pm 3.0 \pm 0.9) \times 10^{-6}$.

NODE=M176R6;LINKAGE=A

[3] Superseded by AUBERT 08Y. AUBERT 05R reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] = (1.28 \pm 0.41) \times 10^{-5}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$.

NODE=M176R6;LINKAGE=AE

[4] CHOI 03 reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] / [B(B^+ \to \psi(2S)K^+)] / [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)] = 0.063 \pm 0.012 \pm 0.007$ which we multiply or divide by our best values $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$, $B(B^+ \to \psi(2S)K^+) = (6.26 \pm 0.24) \times 10^{-4}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.49 \pm 0.30) \times 10^{-2}$.

NODE=M176R6;LINKAGE=CH

$X(3872)$ REFERENCES

NODE=M176

YOUR PAPER	AAIJ	15AO	PR D92 011102	R. Aaij *et al.*	(LHCb Collab.)	REFID=56771
YOUR PAPER	BALA	15	PR D91 051101	A. Bala *et al.*	(BELLE Collab.)	REFID=56408
	AAIJ	13Q	PRL 110 222001	R. Aaij *et al.*	(LHCb Collab.) JP	REFID=54985
	CHOI	11	PR D84 052004	S.-K. Choi *et al.*	(BELLE Collab.)	REFID=53934
	AUBERT	08Y	PR D77 111101	B. Aubert *et al.*	(BABAR Collab.)	REFID=52265
	AUBERT	05B	PR D71 031501	B. Aubert *et al.*	(BABAR Collab.)	REFID=50498
	AUBERT	05R	PR D71 071103	B. Aubert *et al.*	(BABAR Collab.)	REFID=50627
	CHOI	03	PRL 91 262001	S.-K. Choi *et al.*	(BELLE Collab.)	REFID=49628